

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for the treatment of gaseous chemical waste which comprises the steps of:

continuously circulating water through an essentially closed loop incorporating a gas scrubbing unit and an ion absorption unit comprising a water permeable ion absorbing means;

feeding exhaust gas or a reaction product thereof to the gas scrubbing unit for dissolution in the circulating water thereby to form an aqueous solution containing ionic species derived from the exhaust gas;

continuously bringing the circulating water into contact with the ion absorbing means in the ion absorption unit while applying an electrical potential across the thickness of the ion absorbing means and removing from the ion absorption unit a more concentrated aqueous solution of the ionic species; and

continuously adding to the closed loop a quantity of water corresponding to the quantity of aqueous solution of the ionic species removed from the ion absorption unit, wherein the added water circulates through the ion absorption unit simultaneously when the electrical potential is applied to the ion absorbing means of the ion absorption unit for removing from the ion absorption unit the more concentrated aqueous solution of the ionic species.

2. (Original) A method according to claim 1, wherein the ion absorbing means comprises a water permeable layer of an ion absorbing material.

3. (Original) A method according to claim 2, wherein the continuously circulating water is brought into contact with one surface of the layer of ion absorbing material in the ion absorption unit and the more concentrated aqueous solution of the ionic species is removed via the other surface of the layer.

4. (Original) A method according to claim 1, wherein the ion absorbing means comprises a water permeable zone of an ion absorbing material.

5. (Previously Presented) A method according to claim 1, wherein the exhaust gas or the reaction product thereof is fed continuously to the gas scrubbing unit.

6. (Previously Presented) A method according to claims 1, wherein the exhaust gas or the reaction product thereof is fed intermittently to the gas scrubbing unit.

7. (Previously Presented) A method according to claim 1, wherein the exhaust gas or the reaction product thereof contains HF and the ionic species is F⁻.

8. (Previously Presented) A method according to claim 1, wherein the exhaust gas or the reaction product thereof contains HCl and the ionic species is Cl⁻.

9. (Previously Presented) A method according to claim 1, wherein the exhaust gas or the reaction product thereof contains oxides of nitrogen and the ionic species is NO_3^- .

10. (Previously Presented) A method according to claim 1, wherein the exhaust gas or the reaction product thereof contains oxides of sulfur and the ionic species is SO_4^{2-} .

11. (Previously Presented) A method according to any claim 1, wherein the exhaust gas or the reaction product thereof contains oxides of phosphorus and the ionic species is PO_4^{3-} .

12. (Currently Amended) An apparatus for treating gaseous chemical waste comprising:
an essentially closed loop circulation system containing a gas scrubbing unit and an ion absorption unit comprising a water permeable ion absorbing means and means for enabling an electrical potential to be applied across the thickness of the ion absorbing means;

a pump for continuously circulating water around the closed loop;
an inlet for exhaust gas or a reaction product thereof into the gas scrubbing unit;
an inlet for water into the closed loop circulation system; and
an outlet for concentrated aqueous solution of ionic species from the ion absorption unit, wherein a quantity of the concentrated aqueous solution removed from the outlet is replenished by adding water into the closed loop circulation system, wherein the added water circulates through the ion absorption unit simultaneously when the

electrical potential is applied to the ion absorbing means of the ion absorption unit for

removing from the ion absorption unit the concentrated aqueous solution of ionic species.

13. (Original) Apparatus according to claim 12, wherein the ion absorbing means comprises a water permeable layer of an ion absorbing material.

14. (Original) Apparatus according to claim 12, wherein the ion absorbing means comprises a water permeable zone of an ion absorbing material.

15. (Previously Presented) Apparatus according to any of claims 12, which comprises also within the closed loop circulation system a heat exchangers.

16. (Previously Presented) Apparatus according to claim 12, which comprises also within the closed loop circulation system a filter.

17. (Previously Presented) Apparatus according to claim 12, which comprises also within the closed loop circulation system a hydrocyclone.